

George H. LOWELL, et al.
Application No.: 09/938,406
Page 3

PATENT

Amendments to the Claims:

Please kindly amend the claims as follows. This listing will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) An immunogenic composition capable of eliciting neutralizing antibodies in a subject to a pathogenic organism which antibodies are present in vaginal secretions, intestinal secretions, lung secretions or feces, which composition comprises:
 - (a) an antigen comprising a protein or peptide having
 - (i) an endogenous hydrophobic sequence of between about 3 and, about 50 non-polar or uncharged amino acids;
 - (ii) added to the protein or peptide, an exogenous hydrophobic material comprising a sequence of between about 3 and about 50 non-polar or uncharged amino acids or a C8-C18 fatty acyl group; or
 - (iii) both (i) and (ii),
 - (b) a composition comprising proteosomes and bioadhesive nanoemulsions, or both, bioadhesive nanoemulsions, wherein said composition proteosomes and bioadhesive nanoemulsions, or bioadhesive nanoemulsions are is complexed or coupled with (a),

wherein said complexed or coupled protein or peptide maintains a native structure of antigenic epitopes such that, upon administration to said subject, the antigen induces

George H. LOWELL, *et al.*
Application No.: 09/938,406
Page 4

PATENT

neutralizing antibodies in one or more of vaginal secretions, intestinal secretions, lung secretions and feces.

2. (Cancelled)

3. (Previously presented) An immunogenic composition according to claim 1 wherein the exogenous hydrophobic material is a C8-C18 fatty acyl group.

4. (Previously presented) An immunogenic composition according to claim 3 wherein the exogenous hydrophobic material is lauroyl.

5. (Cancelled)

6. (Previously presented) An immunogenic composition according to claim 1 wherein the antigen is a peptide or a peptide oligomer.

7. (Previously presented) An immunogenic composition according to claim 1 wherein the protein is a viral envelope protein.

8. (Previously presented) An immunogenic composition according to claim 7 wherein the viral envelope protein is an oligomeric gp160 from human immunodeficiency virus.

9. (Previously presented) An immunogenic composition according to claim 8 wherein said oligomeric gp160 has the sequence of residues 33-681 of SEQ ID NO: 1.

10. (Previously presented) An immunogenic composition according to claim 1 wherein the protein or peptide is recombinantly produced.

George H. LOWELL, *et al.*
Application No.: 09/938,406
Page 5

PATENT

11. (Previously presented) An immunogenic composition according to claim 1 wherein the antigenic protein or peptide natively contains at least one cysteine residue or has at least one added cysteine residue.

12. (Previously presented) An immunogenic composition according to claim 1 wherein the proteosomes are hydrophobic, multimolecular membrane proteins.

13. (Previously presented) An immunogenic composition according to claim 1 formed by:

(a) bonding the hydrophobic material to said protein or peptide to form a hydrophobic-hydrophilic compound; and

(b) admixing said compound with said proteosomes, bioadhesive nanoemulsions, or both such that said antigen is complexed with said proteosomes or nanoemulsion.

14. (Previously presented) An immunogenic composition according to claim 13 wherein said admixing step is performed in the presence of a detergent, and is followed by the step of

(c) removing the detergent by dialysis.

15. (Previously presented) An immunogenic composition according to claim 13 wherein said admixing step is performed lyophilization.

16. (Previously presented) An immunogenic composition according to claim 1 formulated for intranasal or respiratory administration.

George H. LOWELL, *et al.*
Application No.: 09/938,406
Page 6

PATENT

17. (Previously presented) An immunogenic composition according to claim 1 wherein the vaccine is in a dosage form suitable for multiple inoculations.

18. (Previously presented) An immunogenic composition according to claim 1 wherein the pathogenic organism is a causative agent of a mucosally-transmitted or sexually transmitted disease.